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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/554,164	10/21/2005	Akira Kurome	1141/75380	6583

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EXAMINER

VAUGHN, MEGANN E

ART UNIT PAPER NUMBER

2859

DATE MAILED: 11/17/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/554,164

Applicant(s)

KUROME ET AL.

Examiner

Megann E. Vaughn

Art Unit

2859

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 October 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 6-13, 18-20 is/are rejected.
- 7) ☒ Claim(s) 4, 5, 14-17 and 21 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 10/21/2005
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claim Objections

1. Claims 9-21 are objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim cannot depend from any other multiple dependent claim. See MPEP § 608.01(n).

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

3. Claims 1-3, 6, and 8 are rejected under 35 U.S.C. 102(a) as being anticipated by Harvey et al (US 2005/0083056).

Regarding claim 1, Harvey et al discloses in figure 1 a magnetic resonance imaging apparatus comprising a pair of static magnetic field generating sources (2; page 2, [0026]) opposingly disposed on both sides of an imaging space (see figure) and a gradient magnetic field generating part (4) disposed on the imaging space side of each static magnetic field generating source (see figure) for applying a gradient magnetic field to the imaging space, wherein the static magnetic field generating sources each comprise a magnetic field generating coil (2) and a closed vessel (3) enclosing the magnetic field generating coil inside (page 2, [0026]), the gradient magnetic field generating part is supported on a face of the closed vessel on the

imaging space side, and the closed vessel has a rigid structure for preventing transmission of vibration generated by the gradient magnetic field generating part to other members via the closed vessel (page 1, [0010]).

Regarding claim 2, Harvey et al discloses in figure 1 that the rigid structure (2) has at least one connecting part (9) connecting a face on the imaging space side and a face confronting the face of the closed vessel inside the closed vessel (page 3, [0031]).

Regarding claim 3, Harvey et al discloses that the rigid structure further comprises a rigid reinforcing member fixed on the face confronting the face on the imaging space side of the closed vessel (page 3, [0031]).

Regarding claim 6, Harvey et al discloses fixing means for fixing the gradient magnetic field generating part to the closed vessel, and wherein the gradient magnetic field generating part is integrated with the closed vessel by the fixing means.

Regarding claim 8, Harvey et al discloses in figure 1 that the closed vessel (2) has a second recess (11) in the face confronting the face on the imaging space side, and the rigid reinforcing member (9) is disposed inside the second recess (page 3, [0031]).

4. Claims 1-3, 6, 7, 9-13, and 18-20 are rejected under 35 U.S.C. 102(a) as being anticipated by Harvey et al (US 2005/0068032).

Regarding claim 1, Harvey et al discloses in figures 1 and 2 a magnetic resonance imaging apparatus comprising a pair of static magnetic field generating sources opposingly disposed on both sides of an imaging space (page 2, [0020], lines

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8-22, and [0021], lines 9-10) and a gradient magnetic field generating part (9, 10; 29, 30) disposed on the imaging space side of each static magnetic field generating source (see figures) for applying a gradient magnetic field to the imaging space, wherein the static magnetic field generating sources each comprise a magnetic field generating coil and a closed vessel enclosing the magnetic field generating coil inside (page 2, [0020]), the gradient magnetic field generating part (9, 10; 29, 30) is supported on a face of the closed vessel (2, 3; 22, 23) on the imaging space side (6; 26; claim 1), and the closed vessel has a rigid structure for preventing transmission of vibration generated by the gradient magnetic field generating part to other members via the closed vessel. The limitation a rigid structure for preventing transmission of vibration generated by the gradient magnetic field generating part to other members via the closed vessel is directed to the intended use of the claimed closed vessel and therefore, the intended use of the apparatus does not provide enough patentable weight since it has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. *Ex Parte Masham*, 2 USPQ F.2d 1647 (1987).

Regarding claims 2 and 3, Harvey et al discloses in figures 1 and 2 that the rigid structure has at least one connecting part or rigid reinforcing member connecting a face on the imaging space side and a face confronting the face of the closed vessel inside the closed vessel (page 3, [0023], lines 2-6).

Regarding claim 6, Harvey et al discloses fixing means for fixing the gradient magnetic field generating part to the closed vessel, and wherein the gradient magnetic field generating part is integrated with the closed vessel by the fixing means (page 3, [0023], lines 2-6).

Regarding claim 7, Harvey et al discloses in figures 1 and 2 that each closed vessel (2, 3; 22, 23) has a first recess (7, 8; 27, 28; page 2, [0020]-[0021]) provided for the face on the imaging space side (see figure), the connecting part comprises one or more through-holes (4, 5; 24, 25) provided inside so as to penetrate from the face on the imaging space side to the face confronting the foregoing face, each gradient magnetic field generating part (9, 10; 29, 30) is fixed in the first recess (page 2, [0020]-[0021]), and in at least one of the through-holes, cables (13, 14; 33, 34) for gradient magnetic field for supplying a current to the gradient magnetic field generating part are disposed (page 2, [0020]-[0021]).

Regarding claim 9, Harvey et al discloses in figures 1 and 2 that the through-holes (4, 5; 24, 25) are provided near the side face of the first recess (7, 8; 27, 28).

Regarding claim 10, Harvey et al discloses that the through-hole (4, 5; 24, 25) is provided at an approximate center of the first recess (7, 8; 27, 28) (see figure).

Regarding claim 11, Harvey et al discloses that the rigid reinforcing member is provided with one pathway communicating with the through-holes in the inside thereof, and the cables for gradient magnetic field are disposed in the pathway (page 2, [0020]).

Regarding claim 12, Harvey et al discloses in figures 1 and 2, a means for circulating a refrigerant for cooling the gradient magnetic field generating part, and

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wherein the gradient magnetic field generating part is provided with a means for passing the refrigerant inside, and piping (15, 16; 35, 36) for supplying the refrigerant to the gradient magnetic field generating part is disposed in at least one of the through-holes (4, 5; 24, 25) and a pathway communicating therewith (see figures).

Regarding claim 13, Harvey et al discloses in figures 1 and 2 a pair of high frequency magnetic field generating parts (11, 12; 31, 32) for generating a high frequency magnetic field in the imaging space, and wherein each of the pair of high frequency magnetic field generating parts is disposed on the imaging space side with respect to the gradient magnetic field generating part (see figures), and in at least one of the through-holes and a pathway communicating therewith, cables for high frequency magnetic field for supplying a current to the high frequency magnetic field generating part are disposed (page 2, [0023], line 1- page 3, [0023], line 1).

Regarding claim 18, Harvey et al discloses that the through-hole has an opening inside the first recess, the gradient magnetic field generating part has a current receiving terminal at a position of the opening of the through-hole, the cables for gradient magnetic field have a current supplying terminal, and the current supplying terminal is connected to the current receiving terminal (page 2, [0020], second column, lines 3-10).

Regarding claim 19, Harvey et al discloses that the cables for gradient magnetic field is fixed in the through-hole with a fixing member (page 2, [0020], second column, lines 5-15).

Regarding claim 20, Harvey et al discloses that the through-hole has an opening inside the first recess, the gradient magnetic field generating part has a refrigerant receiving terminal at a position of the opening of the through-hole, the piping has a refrigerant supplying terminal, and the refrigerant receiving terminal is connected to the refrigerant supplying terminal (page 2, [0020], second column, lines 15-23).

Allowable Subject Matter

5. Claims 4, 5, 14-17, and 21 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

6. The following is an examiner's statement of reasons for allowance:

Claims 4-5 are allowable over the prior art of record because the prior art of record does not teach or disclose a magnetic resonance imaging apparatus comprising a rigid reinforcing member comprising at least one of a plate member, in combination with the remaining limitations of the claims.

Claims 14-17 are allowable over the prior art of record because the prior art of record does not teach or disclose a magnetic resonance imaging apparatus comprising three or more of the through-holes provided in the closed vessel, and the cables for gradient magnetic field, the cables for high frequency magnetic field and the piping are disposed individually in the different through-holes and the different pathways communicating therewith, in combination with the remaining limitations of the claims.

Claim 21 is allowable over the prior art of record because the prior art of record does not teach or disclose a magnetic resonance apparatus wherein the piping, the refrigerant supplying terminal and the refrigerant receiving terminal are constituted with a conductive material, so that they serve also as the cables for gradient magnetic field supplying an electric current to the gradient magnetic field generating part, in combination with the remaining limitations of the claims.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: Tsuda et al (US 2004/0251901) discloses an MRI apparatus comprising a cable and cooling pipe for the gradient coil and Yasuhara (US 2003/0107376) discloses a MRI apparatus comprising a cable and cooling tube for the gradient coil.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Megann E. Vaughn whose telephone number is 571-272-8927. The examiner can normally be reached on 8 am- 5 pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diego Gutierrez can be reached on 571-272-2245. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

MEV
Patent Examiner Art Unit 2859
11/12/2006


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